

AMENDMENT UNDER 37 C.F.R. § 1.114(c)
U.S. Application No. 09/918,508 (Q65478)

REMARKS

Status of Claims and Amendment

Claims 1-8, 20-21 and 28 are all the claims pending in the application.

Claim 8 has been amended to recite that the cytokinin receptor is “selected from the group consisting of CRE 1, AHK2 and AHK3, and receiver regions which are derived from the histidine kinase encoded by the gene selected from the group consisting of Sln1 gene of budding yeast, Chey gene of *Salmonella*, RcsC gene of *E. coli* and Phks gene of fission yeast; and (h) a cytokinin receptor comprising the amino acid sequence of (a), (b), (c), (d), (e), or (f) with deletion, substitution, or addition of one or a plurality of amino acids, wherein the amino acid sequence has 95% or higher identity to the amino acid sequence before the deletion, substitution or addition of amino acids, wherein said cytokinin receptor has cytokinin receptor activity and is encoded by the polynucleotide that hybridizes under stringent conditions to the polynucleotide complementary to the nucleotide sequence selected from the group consisting of SEQ ID NOS:1, 3, and 5.” Support for the amendments to claims 8 and 28 may be found, at least at page 11, lines 1-9 and page 26, lines 9-16 of the present specification.

Claim 28 has been amended to recite that the “cytokinin receptor is encoded by the polynucleotide that hybridizes under stringent conditions to the polynucleotide complementary to the nucleotide sequence selected from the group consisting of SEQ ID Nos: 1, 3, and 5” to even further clarify the claimed invention. Support for the amendment to claim 28 may be found, at least at page 16 of the specification.

No new matter is added.

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Response to Examiner's Comments

In paragraph 2, on page 2 of the Office Action, the Examiner indicates that Applicants' statements in Applicants' "Summary of Telephone Calls of August 29, 2007, October 2, 2007, and October 5, 2007" (Remarks, page 8) are not entirely accurate. The Examiner states that Applicants' representative mischaracterized the Examiner's comments regarding claim amendments, and that the Examiner did not state that any particular changes would be "sufficient" or "acceptable". The Examiner points to the Interview Summary and Non-final Office Action mailed October 18, 2007, as well as the statement that "it is not necessary for applicant to provide a separate record of the substance of the interview since the interview did not result in a resolution of all issues" in support of her position.

In response, Applicants note that the statements made during the telephone calls to the Examiner were not "mischaracterized" in the Summary of April 18, 2008. As evidenced by the Examiner's statements in the Office Action mailed October 18, 2007 (see page 2), the rejections under 102(a) and 103(a) were withdrawn in light of the Rule 1.131 and 1.132 Declarations filed July 5, 2007.²

The listing of proposed amendments to claim 8 sent to the Examiner on October 5, 2007 and attached to the Office Action mailed October 18, 2007, are consistent with the suggestions made by the Examiner during the telephone call on August 29, 2007 (see the "Summary of

² This is consistent with the statement by Applicants' representative that the "Examiner contacted Applicants' representative...to state that the Rule 1.131 and 1.132 Declarations filed July 15, 2007 are *sufficient* [emphasis added]." See page 8, 1st paragraph of "Summary of Telephone Calls of August 29, 2007, October 2, 2007, and October 5, 2007".

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Telephone Calls of August 29, 2007, October 2, 2007, and October 5, 2007” in the Amendment filed April 18, 2008). As indicated on the Examiner-initiated Interview Summary of October 18, 2007, claim 8 was discussed. Applicants note that the lack of specific comments and statement that “it is not necessary for applicant to provide a separate record of the substance of the interview since the interview did not result in resolution of all issues” in the Examiner-initiated Interview Summary of October 18, 2007, is not evidence that the Examiner did not make or indicate that certain proposed amendments to claim 8 would be “acceptable” or “sufficient” to address the enablement rejection of record. Nevertheless, it is noted that the statement that “the interview did not result in resolution of all issues” is consistent with the Summary provided by Applicants’ representative because as mentioned in the Summary, the Examiner indicated during the telephone call on October 5, 2007 that the proposed amendment of claim 8, subpart (i) to recite “80% or higher identity” was not supported by the specification for purposes of 112, first paragraph.

In addition, the Examiner’s indication that claim 1 is acceptable with regard to §112, first and second paragraph, is evidenced by the absence of such rejections to claim 1 prior to the October 18, 2007 Office Action³ as well as the present enablement rejection as well as the enablement rejection of October 18, 2007, which appear to be mainly based on the Examiner’s concerns regarding claim 8. Accordingly, the Summary provided by Applicants’ representative

³ It is noted that claim 1, upon which rejected claim 8 depends, was not criticized by the Examiner under 35 U.S.C. 112, first or second paragraph in the Office Action mailed May 2, 2006. Accordingly, claim 8 should be deemed in compliance with the requirements 35 U.S.C. 112, first paragraph by virtue of its dependency on non-rejected claim 1. The subsequent new rejection to claim 1 in the October 18, 2007 Office Action appeared to be a correction of this error on the part of the Examiner.

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on April 18, 2008 is supported by the record and is not a mischaracterization of statements made by the Examiner during the telephone calls of August 29, 2007, October 2, 2007, and October 5, 2007.

Withdrawn Objections and Rejections

Applicants thank the Examiner for withdrawal of the rejection to claims 1 and 28 under 35 U.S.C. § 112, second paragraph.

Response to Rejections under 35 U.S.C. § 112, First Paragraph

1. Enablement

Claims 1-8 and 28 remain rejected under 35 U.S.C. § 112, first paragraph, for alleged lack of enablement.

At the bottom of page 2 to 6, the Office Action appears to assert that Applicants' arguments and amendments to claim 8, are not persuasive because the claims encompass a broad genus of cytokinin receptor genes including variants that are unpredictable based upon the disclosure in the specification and would require undue experimentation on the part of one of ordinary skill in the art to determine.

In particular, the Office Action asserts that the receiver regions of the claimed chimeras in amended claim 8, subpart (h) encompasses cytokinin receptor extracellular regions, transmembrane regions, and histidine kinase regions all derived from the same cytokinin receptor, and receiver regions which are not derived from the same cytokine receptor. However, the specification is asserted to provide insufficient guidance as to the structure of these receiver regions such that the person of ordinary skill in the art would understand their structure.

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Additionally, the Office Action asserts that subpart (h) encompasses a genus of cytokinin receptors comprising amino acid sequences of (a), (b), (c), (d), (e), or (f) with deletion, substitution, or addition of one or a plurality of amino acids that is not taught in the specification because the specification does not teach which deletions, substitutions, or additions of one or a plurality of amino acids wherein the amino acid sequence has 80% or higher identity to the amino acid sequence before the deletion, substitution, or addition of amino acids may be made without affecting the function of the cytokinin receptor.

With regard to claim 28, the Office Action appears to assert that the claim is non-enabled in its full scope since the phrase “a polynucleotide comprising the nucleotide sequence” may refer to a fragment as small as one to five nucleotides in length up to the full length of the recited sequence. Also, with regard to the recitation “wherein said cytokinin receptor is encoded by a polynucleotide that hybridizes...to a polynucleotide comprising the nucleotide sequence selected from the group consisting of SEQ ID NOs: 1, 3, and 5...” in claims 28 and claim 8(h), the Office Action appears to assert that there is no teaching or guidance in the specification or in the art as to how “a polynucleotide” (read as comprising as few as one to five base pairs) can encode an entire cytokinin receptor.

Thus, the Office Action concludes that one of ordinary skill in the art would require undue experimentation to make and/or use the broad cytokinin receptor variants encompassed by the claims.

In response, and as previously argued, the Board of Patent Appeals and Interference (BPAI) has concluded that while the amount of experimentation required to practice the full

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scope of an invention was considerable, such experimentation was routine in the art and not “undue.” Ex parte Kubin (BPAI 2007) (the application claimed the genus of all sequences with 80% similarity to the identified sequence that maintained functionality and the BPAI noted that the disclosed methods is common in molecular biology applications as minor changes in gene sequences can still have the same function as the unaltered sequence.). Accordingly, the BPAI has recognized that mere routine experimentation is required to enable the full scope of an Applicants’ claims reciting nucleic acids encoding proteins at least 80% identical to the disclosed amino acid sequence claimed. Thus, the BPAI has found claims having scope broader than the exact amino acid or nucleotide sequence disclosed should not be rejected under the enablement requirement of 35 U.S.C. § 112, first paragraph.

Nevertheless, and solely to advance prosecution of the present application, claim 8 subparts(g) and (h) have been amended to recite that the cytokinin receptor is “selected from the group consisting of CRE 1, AHK2 and AHK3, and receiver regions which are derived from the histidine kinase encoded by the gene selected from the group consisting of Sln1 gene of budding yeast, Chey gene of *Salmonella*, RcsC gene of *E. coli* and Phks gene of fission yeast; and (h) a cytokinin receptor comprising the amino acid sequence of (a), (b), (c), (d), (e), or (f) with deletion, substitution, or addition of one or a plurality of amino acids, wherein the amino acid sequence has 95% or higher identity to the amino acid sequence before the deletion, substitution or addition of amino acids, wherein said cytokinin receptor has cytokinin receptor activity and is encoded by the polynucleotide that hybridizes under stringent conditions to the polynucleotide

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complementary to the nucleotide sequence selected from the group consisting of SEQ ID NOS:1, 3, and 5.”

In addition, claim 28 has been amended to recite that the “cytokinin receptor is encoded by the polynucleotide that hybridizes under stringent conditions to the polynucleotide complementary to the nucleotide sequence selected from the group consisting of SEQ ID Nos: 1, 3, and 5.”

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, is respectfully requested.

2. Written Description

Claims 1-8, 20, 21, and 28 remain rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement, for the reasons of record.

At the bottom of page 6 to 9, the Office Action appears to assert that Applicants’ arguments are not persuasive because Applicants did not point to any particular part of the Written Description Guidelines or any of the Examples thereto. In addition, the Office Action appears to assert that although the claimed genus disclosed that is within the scope of the claimed genus, i.e. SEQ ID NOs: 2, 4, and 6 (and corresponding nucleic acid sequences SEQ ID NOs: 1, 3, and 5), claims 1-8, 20, 21, and 28 encompass a genus of cytokinin receptors, including variants and chimeras, that are not described in the specification.

In response, and solely to advance prosecution of the present application, claim 8 subparts (g) and (h) have been amended to recite that the cytokinin receptor is “selected from the group consisting of CRE 1, AHK2 and AHK3, and receiver regions which are derived from the

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histidine kinase encoded by the gene selected from the group consisting of Sln1 gene of budding yeast, Chey gene of *Salmonella*, RcsC gene of *E. coli* and Phks gene of fission yeast; and (h) a cytokinin receptor comprising the amino acid sequence of (a), (b), (c), (d), (e), or (f) with deletion, substitution, or addition of one or a plurality of amino acids, wherein the amino acid sequence has 95% or higher identity to the amino acid sequence before the deletion, substitution or addition of amino acids, wherein said cytokinin receptor has cytokinin receptor activity and is encoded by the polynucleotide that hybridizes under stringent conditions to the polynucleotide complementary to the nucleotide sequence selected from the group consisting of SEQ ID NOS:1, 3, and 5.”

In addition, claim 28 has been amended to recite that the “cytokinin receptor is encoded by the polynucleotide that hybridizes under stringent conditions to the polynucleotide complementary to the nucleotide sequence selected from the group consisting of SEQ ID Nos: 1, 3, and 5.”

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, first paragraph, is respectfully requested.

Response to Claim Rejections under 35 U.S.C. § 112, Second Paragraph

Claim 8 is rejected under 35 U.S.C. § 112, second paragraph, as being allegedly indefinite

Specifically, the Office Action asserts that claim 8, subpart (g) has been amended to recite “consisting of the group selected from CRE1, AHK2, AHK3...” but that because the claim also recites “comprising” language, the claim is unclear. The Office Action suggests amending

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the subpart (g) to recite "...from the same cytokinin receptor selected from the group consisting of AHK2, AHK3, and CRE1, and receiver regions..." Additionally, the Office Action appears to assert that claim 8, subpart (h) and claim 28 are confusing because it is unclear and confusing how "a polynucleotide" in the "wherein said cytokinin receptor is encoded by a polynucleotide that hybridizes...to a polynucleotide comprising the nucleotide sequence selected from the group consisting of SEQ ID NOs: 1, 3, and 5...", can encode an entire cytokinin receptor.

In response, and solely to advance prosecution of the present application, claim 8 has been amended as suggested by the Office Action. In addition, claim 28 has been amended to recite that the "cytokinin receptor is encoded by the polynucleotide that hybridizes under stringent conditions to the polynucleotide complementary to the nucleotide sequence selected from the group consisting of SEQ ID Nos: 1, 3, and 5."

Reconsideration and withdrawal of the rejection under 35 U.S.C. § 112, second paragraph, is respectfully requested.

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Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The U.S. Patent and Trademark Office is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,

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